

**AMENDMENTS TO THE CLAIMS**

Claims 1-14. (canceled)

Claim 15. (new) A method of generating and transmitting a preamble signal in an OFDM (Orthogonal Frequency Division Multiplexing) system, comprising the steps of:

generating said preamble signal comprising at least a first part and a second part following said first part in the time domain, wherein said first part is designed for a frame detection and/or an AGC (automatic gain control) and said second part is designed for a timing and frequency synchronization, and wherein each of said first and second parts contains a frequency domain sequence comprising a number of complex symbols when an IFFT (Inverse Fast Fourier Transform) is performed;

generating a time domain signal from said preamble signal by mapping said frequency domain sequences into predefined IFFT points; and

transmitting said time domain signal from a transmitter side to a receiver side of said OFDM system;

wherein the number of complex symbols in the frequency domain sequences of said preamble signal are set so that a synchronization performed in the receiver side is optimized by correlating said frequency domain sequence of said first part and said frequency domain sequence of said second part.

Claim 16. (new) A device for generating and transmitting a preamble signal in an OFDM (Orthogonal Frequency Division Multiplexing) system, comprising:

preamble signal generating means for generating said preamble signal comprising

at least a first part and a second part following said first part in the time domain, wherein said first part is designed for a frame detection and/or an AGC (automatic gain control) and said second part is designed for a timing and frequency synchronization, and wherein each of said first and second parts contains a frequency domain sequence comprising a number of complex symbols when an IFFT (Inverse Fast Fourier Transform) is performed;

time domain signal generating means for generating a time domain signal from said preamble signal by mapping said frequency domain sequences into predefined IFFT points; and

transmitting means for transmitting said time domain signal from a transmitter side to a receiver side of said OFDM system;

wherein the number of complex symbols in the frequency domain sequences of said preamble signal are set so that a synchronization performed in the receiver side is optimized by correlating said frequency domain sequence of said first part and said frequency domain sequence of said second part.

Claim 17. (new) A method of generating and transmitting a preamble signal in an OFDM (Orthogonal Frequency Division Multiplexing) system, comprising the steps of:

generating said preamble signal comprising at least a first part and a second part following said first part in the time domain, wherein said first part is designed for a frame detection and/or an AGC (automatic gain control) and said second part is designed for a timing and frequency synchronization, and wherein each of said first and second parts contains a frequency domain sequence comprising a number of complex symbols when

an IFFT (Inverse Fast Fourier Transform) is performed;

generating a time domain signal from said preamble signal by mapping said frequency domain sequences into predefined IFFT points; and

transmitting said time domain signal from a transmitter side to a receiver side of said OFDM system;

wherein the number of complex symbols of said first part correlates to said number of complex symbols of said second part so that a correlation peak generated by said timing and frequency synchronization performed in said transmitter side with said second part is optimized.

Claim 18. (new) A device for generating and transmitting a preamble signal in an OFDM (Orthogonal Frequency Division Multiplexing) system, comprising:

preamble signal generating means for generating said preamble signal comprising at least a first part and a second part following said first part in the time domain, wherein said first part is designed for a frame detection and/or an AGC (automatic gain control) and said second part is designed for a timing and frequency synchronization, and wherein each of said first and second parts contains a frequency domain sequence comprising a number of complex symbols when an IFFT (Inverse Fast Fourier Transform) is performed;

time domain signal generating means for generating a time domain signal from said preamble signal by mapping said frequency domain sequences into predefined IFFT points; and

transmitting means for transmitting said time domain signal from a transmitter

side to a receiver side of said OFDM system;

wherein the number of complex symbols of said first part correlates to said number of complex symbols of said second part so that a correlation peak generated by said timing and frequency synchronization performed in said transmitter side with said second part is optimized.

Claim 19. (new) A method of generating and transmitting a preamble signal in an OFDM (Orthogonal Frequency Division Multiplexing) system, comprising the steps of:

generating said preamble signal comprising at least a first part and a second part following said first part in the time domain, wherein said first part is designed for a frame detection and/or an AGC (automatic gain control) and said second part is designed for a timing and frequency synchronization, and wherein each of said first and second parts contains a frequency domain sequence comprising a number of complex symbols when an IFFT (Inverse Fast Fourier Transform) is performed;

generating a time domain signal from said preamble signal by mapping said frequency domain sequences into predefined IFFT points; and

transmitting said time domain signal from a transmitter side to a receiver side of said OFDM system;

wherein said frequency domain sequences of the first and second parts have correlation properties set for said timing and frequency synchronization process performed in said receiver side.

Claim 20. (new) A device for generating and transmitting a preamble signal in an

OFDM (Orthogonal Frequency Division Multiplexing) system, comprising:

preamble signal generating means for generating said preamble signal comprising at least a first part and a second part following said first part in the time domain, wherein said first part is designed for a frame detection and/or an AGC (automatic gain control) and said second part is designed for a timing and frequency synchronization, and wherein each of said first and second parts contains a frequency domain sequence comprising a number of complex symbols when an IFFT (Inverse Fast Fourier Transform) is performed;

time domain signal generating means for generating a time domain signal from said preamble signal by mapping said frequency domain sequences into predefined IFFT points; and

transmitting means for transmitting said time domain signal from a transmitter side to a receiver side of said OFDM system;

wherein said frequency domain sequences of the first and second parts have correlation properties set for said timing and frequency synchronization process performed in said receiver side.

Claim 21. (new) A method of generating and transmitting a preamble signal in an OFDM (Orthogonal Frequency Division Multiplexing) system, comprising the steps of:

generating said preamble signal comprising at least a first part and a second part following said first part in the time domain, wherein said first part is designed for a frame detection and/or an AGC (automatic gain control) and said second part is designed for a timing and frequency synchronization, and wherein each of said first and second parts

contains a frequency domain sequence comprising a number of complex symbols when an IFFT (Inverse Fast Fourier Transform) is performed;

generating a time domain signal from said preamble signal by mapping said frequency domain sequences into predefined IFFT points; and

transmitting said time domain signal from a transmitter side to a receiver side of said OFDM system;

wherein said complex symbols of said first part are correlated with said complex symbols of said second part for said timing and frequency synchronization process performed in said receiver side.

Claim 22. (new) A device for generating and transmitting a preamble signal in an OFDM (Orthogonal Frequency Division Multiplexing) system, comprising:

preamble signal generating means for generating said preamble signal comprising at least a first part and a second part following said first part in the time domain, wherein said first part is designed for a frame detection and/or an AGC (automatic gain control) and said second part is designed for a timing and frequency synchronization, and wherein each of said first and second parts contains a frequency domain sequence comprising a number of complex symbols when an IFFT (Inverse Fast Fourier Transform) is performed;

time domain signal generating means for generating a time domain signal from said preamble signal by mapping said frequency domain sequences into predefined IFFT points; and

transmitting means for transmitting said time domain signal from a transmitter

side to a receiver side of said OFDM system;

wherein said complex symbols of said first part are correlated with said complex symbols of said second part for said timing and frequency synchronization process performed in said receiver side.